

**RoHS Compliant  
Pb - Lead Free  
AEC-Q200 Qualified**

Ltr	Revisions	Date	Appr

### Electrical Specifications:

Frequency Range		6.000 to 133.000	MHz
Mode of Oscillation	Fundamental	6.000 to 48.000	
	Third Overtone	40.000 to 133.000	
Frequency Tolerance at 25°C		±50	PPM Max
Frequency Stability over Temperature Range		±100	
Operating Temperature Range		-40 to +125	° C
Storage Temperature Range		-55 to +150	
Aging per Year		±3	PPM Max
Load Capacitance		10 to 32 and Series Resonance	pF
Shunt Capacitance		7.0	
Equivalent Series Resistance (ESR)		See ESR Table	Ohm
Drive Level		100	uW Typ
Insulation Resistance		500 at 100 Vdc ± 15 Vdc	M Ohm

### Frequency Range and ESR Values:

Frequency Range in MHz	ESR Ohm Max	Mode of Operation
6.000 to 10.000	110	Fundamental
10.100 to 12.000	60	Fundamental
12.100 to 20.000	45	Fundamental
20.100 to 48.000	30	Fundamental
40.000 to 52.000	80	Fundamental
52.100 to 133.000	60	Third Overtone



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All dimensions are millimeters.

CAD: TCR

Review: EG

Appr: JL

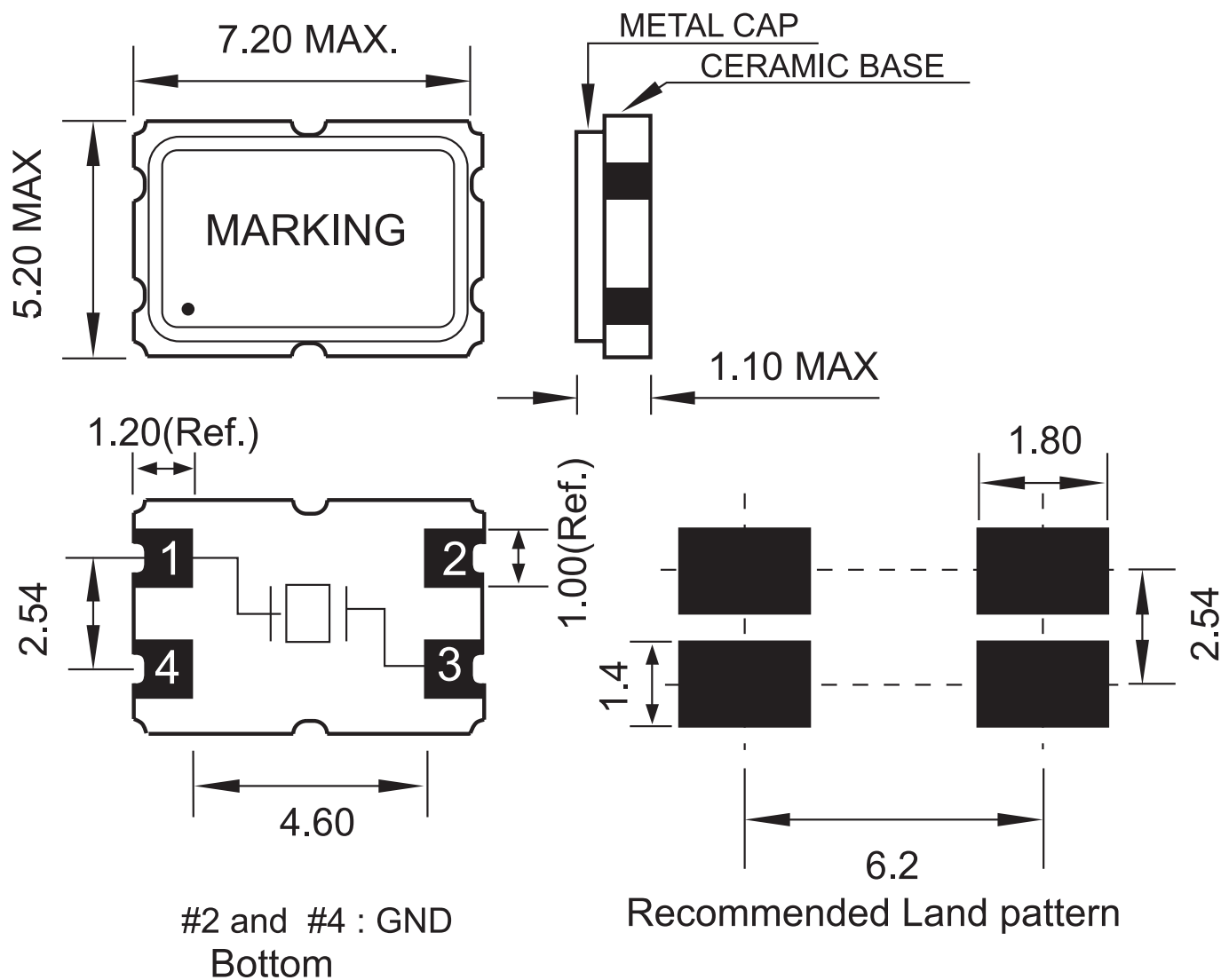
Page: 1/4 Date: April 18, 2008

Specification Title:

**Microprocessor Crystal Unit  
Automotive Temperature Range  
5 x 7 millimeter Surface Mount - 4 Pad  
General Product Specification**

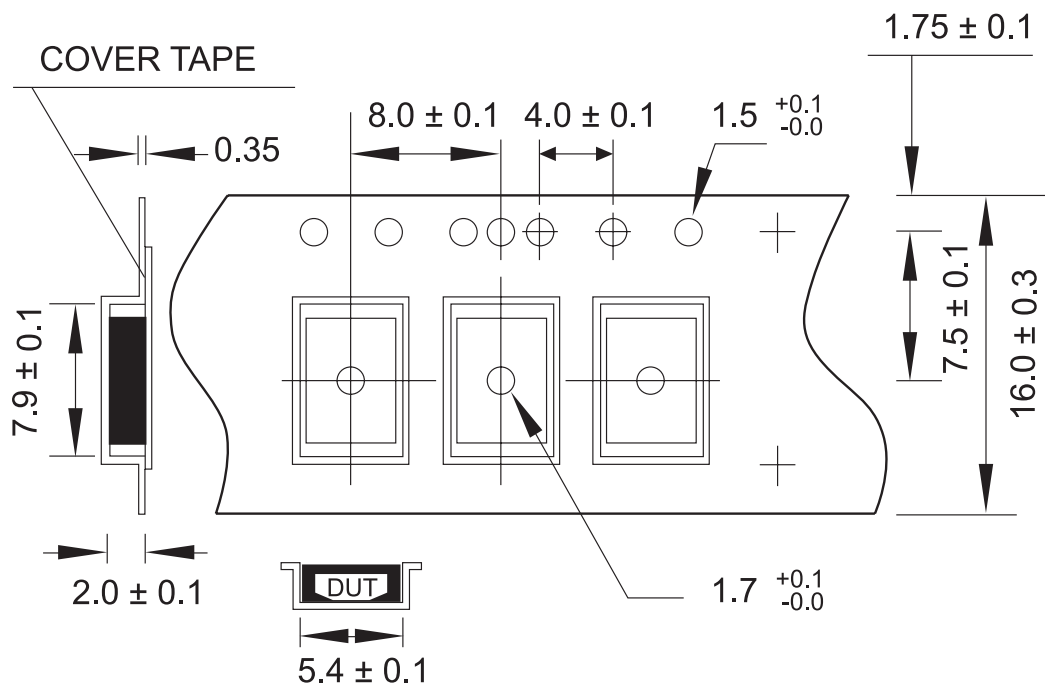
Part Number: **C7S X1 Series**

**Mechanical Outline:**



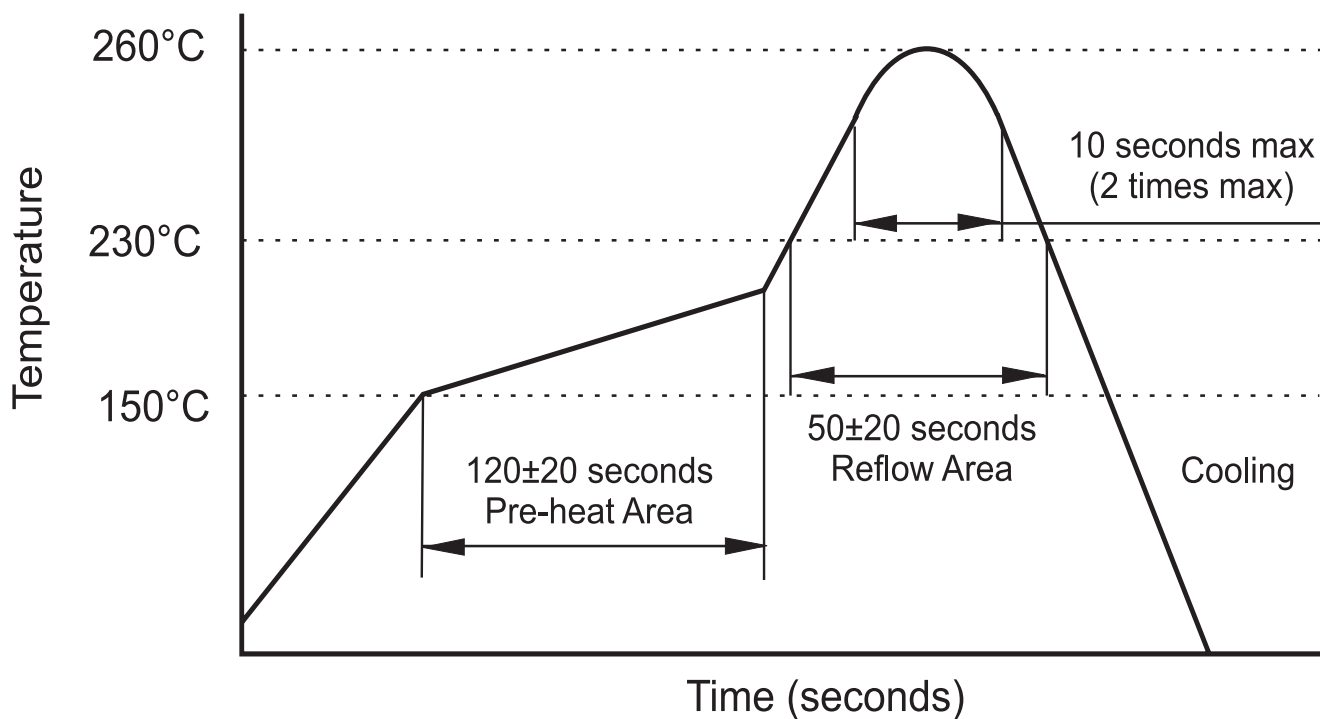
**Package is Seam Sealed Ceramic-Metal.**  
**Dimensions are millimeters.**

## Carrier Tape Dimensions:



Dimensions are millimeters.

## Solder Reflow Characteristics:



**How to build a Part Number:**

<b>Series</b>	<b>C</b>	<b>Parameter</b>
<b>Package</b>	<b>7S</b>	<b>5.0 x 7.0 mm</b>
	-	
<b>Frequency</b>	<b>6.000 to 133.000</b>	<b>MHz</b>
	-	
<b>Load Capacitance</b>	<b>10</b>	<b>10 pF</b>
	<b>12</b>	<b>12 pF</b>
	<b>16</b>	<b>16 pF</b>
	<b>18</b>	<b>18 pF</b>
	<b>20</b>	<b>20 pF</b>
	<b>32</b>	<b>32 pF</b>
	<b>S</b>	<b>Series</b>
	-	
<b>Frequency Tolerance</b>	<b>50</b>	<b>±50 PPM</b>
<b>Frequency Stability</b>	<b>100</b>	<b>±100 PPM</b>
	-	
<b>Mode of Oscillation</b>	<b>See Notes</b>	<b>Fundamental</b>
	<b>3</b>	<b>Third Overtone</b>
	-	
<b>Temperature Range</b>	<b>X1</b>	<b>-40 to +125 °C</b>
	-	
<b>Packaging</b>	<b>R</b>	<b>Tape and Reel</b>

**Part Number Example:****C7S-64.000-18-50100-3-X1-R****C7S- 5 x 7 mm SMD Seam Seal Package - 4 pad****64.000 MHz Nominal Frequency****18 pF Load Capacitance****50100: ±50 PPM Frequency Tolerance and ±100 PPM Frequency Stability****Third Overtone Mode****X1: -40 to +125° C Automotive Temperature Range****R: Tape and Reel Packaging****Notes:**

- 1- Fundamental mode does not need to be included in Part Number description.
- 2- Product is shipped in Tape and Reel configuration. Each reel contains 1000 pieces.
- 3- Quantities less than 1000 are shipped bulk in ESD pouches.
- 4- Specification subject to change without notice.